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**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB/T 25851.2-2023

**Mobile cranes - Experimental determination of crane
performance - Part 2: Structural competence under static
loading**

流动式起重机 起重机性能的试验测定 第2部分：静载荷作用下的结构能力
(English Translation)

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Foreword

This document complies with the provisions of GB/T 1.1-2020 "Standardization Work Guidelines Part 1: Structure and Drafting Rules of Standardization Documents" Drafting:

This document is Part 2 of GB/T 25851 "Test and Determination of Crane Performance of Mobile Cranes": GB/T 25851 has been the following sections were published:

---Part 1: Overturning load and amplitude;

---Part 2: Structural capacity under static loads:

This document is equivalent to ISO 11662-2:2014 "Test determination of crane performance of mobile cranes - Part 2: Static load" Structural capabilities under action":

Please note that some content in this document may be subject to patents: The publisher of this document assumes no responsibility for identifying patents:

Introduction

GB/T 25851 aims to specify the test method used to verify the rated lifting capacity chart of mobile cranes: It is planned to be composed of two Partial composition:

---Part 1: Overturning load and amplitude: The purpose is to specify the measurement of mobile cranes when the load acts on the hook pulley block:

Test method for maximum balancing ability:

---Part 2: Structural capacity under static loads: The purpose is to specify the determination of the forces produced by mobile cranes under static load conditions:

Test methods for stress:

The design calculations performed for the mobile crane are based on an ideal model: In this model, all members and parts are completely straight and made with precision: For tension and bending members, the difference between the actual crane and the ideal model is usually not obvious: However, for receiving for pressed components, straightness and manufacturing deviations need to be considered:

When strain gauges are used for non-destructive testing of mobile cranes, the stresses determined essentially include straightness and manufacturing accuracy the impact of bias:

This test method is intended to describe the approximate maximum load conditions endured by each unit in the entire load-bearing structure of the crane (see Appendix D): in a certain in some cases, analysis may indicate more severe load conditions: In these cases, more severe conditions can be added to the specified test operating conditions or in lieu of specified test conditions: In addition, this test method divides the stress area into four major categories: Class I (uniform stress area), Class II (stressed area) Force concentration

area), Category III (buckling area of compression bar) and Category IV (local buckling area of plate) (see Chapter 10), and the limits of each type are defined: test the results can be used to correlate the boom system calculation results in the Class III stress area given by the boom system calculation: In the entire structure, the Class I stress area the test results can be used to check any available calculations: This test method is used to evaluate Class II stress areas where few calculations are available:

Category IV stress areas may have disproportionately high stress readings and can be reviewed through calculation methods for better understanding:

If the same analysis program shows stress levels less than or equal to those in the original application, and the support structure is stiffer than in the original If the bracket is the same, the boom system evaluated according to the method of this document can be used directly on another machine without the need to re-install it through the method specified here:

experimenting: The stiffness of the support structure is determined by the change in the slope of the boom root axis when the test load is applied:

Test determination of mobile crane crane performance Part 2: Structural capacity under static loads

1 Scope

This document applies to mobile cranes using the following components:

- a) Wire rope, main arm or main arm and fixed jib (see Figure E:3 in Appendix E);
- b) Wire rope, main boom, luffing jib and fixed jib (see Figure E:1 and Figure E:2);
- c) Telescopic arm or telescopic arm and jib (see Figure E:4):

Mobile crane manufacturers can use this document to verify the design of the mobile crane shown in Figures E:1 to E:4:

This document describes the use of electrical resistance strain gauges for mobile cranes to determine the stresses produced in the crane structure under specified static load conditions:

Stress testing procedures:

2 Normative reference documents

The contents of the following documents constitute essential provisions of this document through normative references in the text: Among them, referenced documents with dates are only the version corresponding to the date applies to this document; for undated referenced documents, the latest version (including all amendments) applies to this document:

Note: GB/T 21457-2008 Measurement accuracy requirements for parameters during testing of cranes and related equipment (ISO 9373:1989, IDT)

3 Terms and definitions

The following terms and definitions apply to this document:

strain

The relative elongation or compression of a material at any given point with respect to a specific plane passing through that point, expressed as the change in length per unit length
Quantity (m/m):

stress

The internal force per unit area produced by strain:

Note 1: The unit is Pascal (Pa) or Newton per square meter (N/m²):

Note 2: For simplicity, this document will use megapascals (MPa):

Yield Strength

Stress when strain increases disproportionately without a corresponding increase in stress:

Note: In this document, the yield point is considered to be the minimum 0.2% offset tensile yield point or yield strength specified in the appropriate standard for the material used: